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cating well marked sub-areas—of which Barbados is one—in the different West Indies there is a certain unity which stamps them as belonging to one great culture area—the Carib-Arawak—extending through the islands from the heart of South America to Florida. This resemblance extending along the east coast of Central America to the Maya area, with which it has close affinities, and along the north coast of South America to the mouth of the Amazon, is practically identical with the Arawak.

CULTURE OF THE NORTH AMERICAN INDIANS OCCUPYING THE CARIBOU AREA AND ITS RELATION TO OTHER TYPES OF CULTURE

By Clark Wissler

AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK

Presented to the Academy, November 2, 1914

The anthropology of North America has now reached a stage in its development where larger and broader problems can be successfully pursued. In the past, for want of data and tried methods, investigations were of necessity confined to tribal units and it was not until a considerable number of these units had been studied that any positive conclusions could be formed as to the continent as a whole. The following brief statement is a mere summary of investigations bearing upon the origin and significance of the observed distribution of certain culture traits in the northern half of the continent. The method is to study in detail the collections in museums and to correlate the results with the field-data of anthropologists and the observations of travelers.

A brief general discussion of the problem may be found in the review of the 'Material Culture of the North American Indians' in the *American Anthropologist*, vol. 16, no. 2, and in special studies, as 'The Influence of the Horse in the Development of Plains Culture,' *American Anthropologist*, vol. 16, no. 1, and the 'Material Culture of the Black-foot,' *Anthropological Papers*, American Museum of Natural History, vol. 5, part 1. These, however, are but preliminary to the more exhaustive treatment of the problems now under investigation.

1. *Caribou Culture Defined.* The material cultures of the Indian tribes occupying the interior of Canada present striking similarities. Their chief food was animal, the flesh of the caribou. Excepting the Pacific drainage and the prairie section, the entire area of Canada, including the interior of Alaska and the Arctic islands of the north, constituted the range of the caribou. Their range and that of the

bison overlapped in the Saskatchewan and Mackenzie Basins. Throughout this extensive territory the Indians were more or less completely dependent upon the caribou for food and clothing. Even the Eskimo hunted them in summer and made their winter clothing of their skins. Naturally, the material life of the Indians, and to a large extent that of the Eskimo, was adjusted to the necessities of a caribou hunter's career. For this reason, we speak of the culture of these Indians as the caribou culture. Some of the traits of this culture are: the use of birch and other bark for canoes, vessels, etc., the toboggan and the snowshoes, dog traction, the general use of snares for taking game both large and small, the high development of the net, the soft moccasin and the hooded coat, special methods of dressing and smoking skins, and the more or less exclusive use of a tipi-like shelter.

2. *The Relation of Caribou Culture to Bison Culture.* The Indian tribes formerly occupying the plains and prairies in the interior of North America constitute a highly individualized cultural group. They were almost entirely dependent upon the bison. As we have just noted, the bison and caribou areas overlapped, the ranging habits of the two animals have certain similarities; thus they move in great herds, and in the open country, and may be captured en masse by being driven into pounds or other enclosures. Our main problem is the analytic comparison of these two cultures with a view to determining their possible historical connection.

(a) *Bison and Caribou Drives.* From Alaska to Greenland the methods of driving herds of caribou in pens, snares, or between the lines of hunters are in general the same. The last method is rarely used in winter, while the former is almost exclusively a winter method. Long lines of poles are set up in the snow to drive the running caribou, which show a tendency to run along such lines, but men and women may be placed behind screens to turn the leaders in case of need. By long converging lines a herd may be run over a bank into an enclosure, into snares, or on to thin ice. In a precisely similar manner the Indians of the plains impounded buffalo in winter and occasionally in summer. From the detailed accounts, it is clear that even many minutiae of manipulation are the same for the bison and caribou. Another point is that the farther north one goes among the plains Indians the more highly developed was the method of impounding, and according to early literature the Cree were the most skillful. Now it so happens that the Cree living in the forests and tundras are also skillful in driving the caribou, giving us the probable connecting link.

(b) *Dog Traction*. Though the dog was quite generally distributed in America it was chiefly in the bison and caribou areas that he was used for transport. The use of sledges was practically confined to the caribou area but in summer the loads were made up as packs. In the bison area and the Barren Grounds tent poles were dragged by dogs, and in parts of the former area developed into a packing drag known as a travois. In this connection we have investigated the relation of the horse to bison culture making it clear that one of the reasons why the use of the horse spread so rapidly in this area was that he could be quickly substituted for the dog without developing new culture traits. Our data show that the horse quickly reached the tribes of Canada, via the Spanish settlements of Mexico, and was carried as far north as the climate permitted.

(c) *The Tipi-like Shelter*. The development of this problem has been the detailed study of the structure of tipis and tents of the two areas. The most intense development of the true tipi is found in the bison area, the Mackenzie Valley, and among the Algonkin speaking tribe of Canada. The definitive points of comparison are the arrangements of the poles forming the conical foundation and the detailed cut of the skin or bark covers. An analytic comparison of structure along these lines suggests that the tipi was introduced into the bison area from the caribou area to the north.

(d) *Costume*. Another important part of the investigation is the study of museum collections of costume, the related techniques of sewing and skin dressing. In this case we have a contemporary, Gudmund Hatt, a young Danish anthropologist who has made an intensive study of Lapp and Siberian costumes and pointed out some correspondences in America. Our own data for the bison area in contrast to that for the eastern and western parts of the United States make it clear that we have in this area alone a development of skin clothing comparable to that of the caribou area. Further, the detailed study of forms in both men's and women's clothing, shows that in general, as we proceed northward in the bison area, the resemblances to the culture of the caribou area become more numerous. In brief, the conclusion is that in America, the use of skin clothing is practically confined to the combined bison and caribou areas but is a more intense and universal trait in the latter. We find a similar distribution for the true moccasin and certain methods of dressing skins.

(e) *Harpoons and Hunting Points*. The investigation of these traits of culture has not gone far enough to make very definite statements. One characteristic of the caribou area is the large use of bone points,

many of which are barbed. While barbed points are rarely used in the bison area, there was a strong tendency to use bone points, especially in the north.

In addition to the preceding, the investigation is concerned with such traits as textile arts, birchbark technique, weapons, and special manufacturing processes. The distribution of the traits enumerated above indicates a fundamental similarity between the material cultures of the caribou and bison areas. The interpretation of this observation is an important theoretical problem. The experience of anthropologists to date is that in all such cases we have two major alternatives, diffusion from a single center or independent development in two or more localities. It remains to be seen which of these will be the more satisfactory interpretation for the above noted similarities in culture.

Finally, this study has developed the problem of caribou, or New World reindeer, culture in its relation to the reindeer culture of the Old World in both modern and paleolithic times. It now appears probable that in the great area of the reindeer and caribou (for they are geographically continuous) we have a concomitant human culture which may be as old as paleolithic man in Europe. This will be more fully discussed when our detailed studies of caribou culture are published.

REPORT ON THE AUTUMN MEETING

Prepared by the Home Secretary

The Autumn Meeting of the National Academy of Sciences was held in the Botanical Laboratory of the University of Chicago on December 7, 8, and 9, 1914, twenty-one members of the Academy being present.

BUSINESS SESSIONS

Business sessions were held on December 8 and 9, at which the following business was transacted:

The President announced that since its Annual Meeting in April the Academy had lost by death two members, Theodore Nicholas Gill, elected in 1873, who died on September 25, 1914, and Charles Sedgwick Minot, elected in 1897, who died on November 19, 1914; also two foreign associates, Edouard Suess, elected in 1898, who died on April 26, 1914, and August Weismann, elected in 1913, who died on November 5, 1914.

The President made also the following announcements:

That Mr. Ira Remsen was acting as Chairman of the Board of Directors of the Bache Fund for the time being in the place of Charles S. Minot, deceased.

That by the death of Theodore N. Gill a vacancy was created in the Finance